

CLAIMS

1. A method for transmitting a serial video data stream by employing a hierarchical digital transmission standard, said method comprising:

5 segmenting said serial video data stream into a sequence of horizontal scan lines;
encapsulating said horizontal scan lines within GFP packets; and
mapping said GFP packets into a digital signal in accordance with said hierarchical digital transmission standard.

10 2. The method of claim 1 wherein said digital transmission standard comprises SONET.

3. The method of claim 1 wherein said digital transmission standard comprises SDH.

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4. The method of claim 1 wherein said digital transmission standard comprises G.709.

5. The method of claim 1 wherein said serial video data stream comprises an ANSI/SMPTE 259M-1997 serial video data stream.

5 6. The method of claim 1 wherein mapping comprises:
mapping said GFP packets into a VC-3-6v virtual concatenation.

7. The method of claim 1 wherein mapping comprises:
mapping said GFP packets into a VT3-6v virtual concatenation.

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8. A method for receiving a serial video data stream by employing a hierarchical digital transmission standard, said method comprising:

demapping GFP frames from a signal formatted in accordance with said hierarchical digital transmission standard; and

15 deencapsulating said GFP frames to extract horizontal scan lines of said serial video data stream.

9. The method of claim 8 further comprising:

buffering said horizontal scan lines in a buffer; and

recovering clock timing of said serial video data stream based on said horizontal
5 scan lines.

10. The method of claim 9 wherein recovering clock timing comprises:

reading data out of said buffer in accordance with a locally generated clock; and

varying frequency of said locally generated clock in accordance with occupancy
10 of said buffer.

11. The method of claim 8 wherein said digital transmission standard
comprises SONET.

15 12. The method of claim 8 wherein said digital transmission standard
comprises SDH.

13. The method of claim 8 wherein said digital transmission standard comprises G.709.

5 14. The method of claim 8 wherein said serial video data stream comprises an ANSI/SMPTE 259M-1997 serial video data stream.

15. The method of claim 8 wherein demapping comprises:
demapping said GFP packets from a VC-3-6v virtual concatenation.

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16. The method of claim 8 wherein demapping comprises:
demapping said GFP packets from a VT3-6v virtual concatenation.

17. Apparatus for transmitting a serial video data stream by employing a hierarchical digital transmission standard, said apparatus comprising:

5 a scan line delineation block that segments said serial video data stream into a sequence of horizontal scan lines;

a mapper that encapsulates said horizontal scan lines within GFP packets and maps said GFP packets into a digital signal in accordance with said hierarchical digital transmission standard.

10 18. The apparatus of claim 17 wherein said digital transmission standard comprises SONET.

19. The apparatus of claim 17 wherein said digital transmission standard comprises SDH.

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20. The apparatus of claim 17 wherein said digital transmission standard comprises G.709.

21. The apparatus of claim 17 wherein said mapper maps said GFP packets into a VC-3-6v virtual concatenation.

5 22. The apparatus of claim 17 wherein said mapper maps aid GFP packets into a VT3-6v virtual concatenation.

23. The apparatus of claim 17 wherein said serial video data stream comprises an ANSI/SMPTE 259M-1997 serial video data stream.

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24. Apparatus for receiving a serial video data stream via a hierarchical digital transmission standard, said method comprising:

a demapper that demaps GFP frames from a signal formatted in accordance with said hierarchical digital transmission standard and deencapsulates said GFP frames to
15 extract horizontal scan lines of said serial video data stream; and

a clock recovery system that recovers timing of said serial video stream.

25. The apparatus of claim 24 further comprising:

a buffer that stores said extracted horizontal scan lines, said serial video data stream being clocked out of said buffer in accordance with said recovered timing.

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26. The apparatus of claim 25 wherein said clock recovery system comprises:

a buffer occupancy measurement block that measures occupancy of said buffer, said timing being adjusted in accordance with said measured occupancy.

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27. The apparatus of claim 24 wherein said digital transmission standard comprises SONET.

28. The apparatus of claim 24 wherein said digital transmission standard comprises SDH.

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29. The apparatus of claim 24 wherein said digital transmission standard comprises G.709.

30. The apparatus of claim 24 wherein said serial video data stream comprises an ANSI/SMPTE 259M-1997 serial video data stream.

5 31. The apparatus of claim 24 wherein said demapper demaps said GFP packets from a VC-3-6v virtual concatenation.

32. The apparatus of claim 24 wherein said demapper demaps said GFP packets from a VT3-6v virtual concatenation.

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33. Apparatus for transmitting digital video information employing a hierarchical digital transmission standard, said apparatus comprising:

a video interface configured to receive one of a serial digital video stream and a DVB-ASI packet stream; and

15 a mapper that maps GFP packets that include data from either said digital video stream or said DVB-ASI packet stream into a digital signal in accordance with said digital transmission standard; and

wherein in a first mode said video interface receives said serial digital video data stream and said GFP packets include digital video data and in a second mode said video

interface receives DVB-ASI packets and said GFP packets include data from said DVB-ASI packet stream.

5 34. The apparatus of claim 33 further comprising:

 a scan line delineation block that, during said first mode, segments said serial video data stream into a sequence of horizontal scan lines to be input to said mapper;

 an 8b/10b decoder that, during said second mode, decodes data of said DVB-ASI packet stream; and

10 a 64b/65b encoder that, during said second mode, encodes output of said 8b/10b decoder, output of said 64b/65b encoder being input to said mapper.

 35. Apparatus for receiving digital video information employing a hierarchical digital transmission standard, said apparatus comprising:

15 a demapper that demaps GFP packets from a digital signal in accordance with said hierarchical digital video standard, said GFP packets containing said digital video information; and

 a video interface that outputs either a serial video data stream or a stream of DVB-ASI packets responsive to said GFP packets; and

wherein, in a first mode, said GFP packets comprise segments of said serial video data stream corresponding to horizontal scan lines and said video interface outputs said serial video data stream and, in a second mode, said GFP packets comprise information
5 from said stream of DVB-ASI packets and said video interface outputs said stream of DVB-ASI packets.

36. The apparatus of claim 35 further comprising:

a clock recovery system that recovers timing of said serial video data stream
10 during said first mode;

a buffer that, during said first mode, stores horizontal scan lines of serial digital video data extracted from said GFP packets, said serial video data stream being clocked out of said buffer in accordance with said recovered timing; and

a buffer occupancy measurement block that, during said first mode, measures
15 occupancy of said buffer, said timing being adjusted in accordance with said measured occupancy.

37. The apparatus of claim 36 further comprising:

a 64b/65 decoder that, during said second mode, decodes DVB-ASI data recovered from said GFP packets;

5 a 8b/10b encoder that, during said second mode, outputs said stream of DVB-ASI packets responsive to output from said 64b/65 b decoder; and

a clock tolerance compensation FIFO that, during said second mode, regulates timing of said stream of DVB-ASI packets by inserting and removing comma characters.

10 38. Apparatus for transmitting a serial video data stream by employing a hierarchical digital transmission standard, said apparatus comprising:

means for segmenting said serial video data stream into a sequence of horizontal scan lines;

means for encapsulating said horizontal scan lines within GFP packets; and

15 means for mapping said GFP packets into a digital signal in accordance with said hierarchical digital transmission standard.

39. Apparatus for receiving a serial video data stream by employing a hierarchical digital transmission standard, said apparatus comprising:

means for demapping GFP frames from a signal formatted in accordance with
said hierarchical digital transmission standard; and

means for deencapsulating said GFP frames to extract horizontal scan lines of said
5 serial video data stream.